IMPLEMENTING CONVOLUTIONAL NEURAL NETWORK ALGORITHM IN DETERMINING THE FEASIBILITY OF WOOD FOR FURNITURE MATERIALS

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ABSTRACT

Wood suitability is a critical factor in the furniture industry. However, many manufacturers still overlook this aspect, which can negatively impact production outcomes and selling prices. With technological advancements, such as digital image processing, selecting suitable wood can now be performed without relying on human vision. This study proposes a method for classifying wood suitability based on digital images using Deep Learning techniques. Specifically, we employ a Convolutional Neural Network (CNN), a type of Deep Learning algorithm, to analyze images of wood suitability. The dataset used in this study was obtained through observations conducted by researchers at CV Kanindotama and consists of 105 wood images, divided into 83 for training and 22 for testing. The model, built using the MobileNetV2 architecture, achieved an accuracy of 98.29% on the training data and 100% on the test data. These results demonstrate that the CNN algorithm is effective for analyzing wood suitability.

***Keywords**: Classification, Image, Wood, CNN, MobileNetV2*